

REMARKS

The Office Action rejected claims 1-20 under the second paragraph of 35 U.S.C. §112. While applicant does not agree with the rejection, the preambles of independent claims 1, 16 and 17 are being amended as the Examiner suggests in order to further advance the prosecution of the application.

Claims 1-3, 6, 8-9, 12-13 and 16-20 were rejected under 35 U.S.C. §102(e) as allegedly being anticipated by “Diffusion Tree Restructuring for Indirect Reference Counting” (Dickman). Applicant respectfully traverses the rejection. First, applicant believes that Dickman does not qualify as prior art 35 U.S.C. §102(e). Condition for patentability under section 102(e) refers to published applications or granted patents. Dickman as the Office Action states is a non-patent literature, and therefore does not qualify as prior art under that section.

In addition, applicant believes that the rejection over Dickman is improper because Dickman fails to disclose or suggest every element claimed at least in independent claims 1, 16 and 17. For example, Dickman does not disclose or suggest at least “identifying, based on the associated reference count and depth value, which of the plurality of objects are processed to determine whether or not they are garbage” as recited in independent claims 1, 16 and 17. The Office Action cites Dickman’s page 9, column 1 lines 48-55 and column 2, lines 8-14 as allegedly disclosing that element. However, that passage of Dickman appears to refer to reducing the depth of the diffusion trees in order to reduce the tree sizes. Dickman does not disclose or suggest to “identify which of the plurality of objects are processed to determine whether or not they are garbage,” and furthermore does not disclose or suggest doing so at least based on “depth value” in that passage or anywhere else.

Rather, as understood by applicant, Dickman appears to disclose restructuring or rearranging object trees to reduce their depth, with the goal of reducing the tree sizes. That is, Dickman appears to disclose a way of rearranging a set of objects and appears to use a depth counter for such rearranging. That is, when a subtree is moved, Dickman updates the depth counter of the root of the subtree. However, while Dickman appears to use depth counters in reducing or reordering the objects in a tree, Dickman does not disclose or suggest using a depth counter to determine whether an object is to be processed as garbage.

In addition, while the above reason suffices to distinguish independent claims 1, 16 and 17 from Dickman, applicant believes that Dickman also does not disclose or suggest at least “keeping an existing depth value associated with an object when a new link is added from another object to the object if the existing depth value associated with the object is a valid depth value” because Dickman does not have a notion of what is a valid or invalid depth value because whether a depth value is valid or invalid is inconsequential to Dickman’s purposes. Rather, in Dickman as understood by applicant, depth values are always considered to be valid and the depth value of a newly linked object is always set based on the depth value of the already-existing object. Accordingly, Dickman does not disclose or suggest to keep an existing depth value if it is a valid depth value. For at least the foregoing reason, it is believed that independent claims 1, 16 and 17 and their respective dependent claims by virtue of dependency are not anticipated by Dickman.

Furthermore, while the above reasons also apply to claim 3 by virtue of claim 3’s dependency on claim 1, applicant proffers the following additional reason to further distinguish claim 3. Claim 3 recites in part, “a first of the objects is identified for processing when it is determined that a second of the objects previously pointing thereto is no longer pointing thereto,

and the depth value of the second object is one less than the depth value of the first object.” The Office Action cites Dickman’s page 2, column 1, lines 17-19 and page 6, column 2, lines 18-20 as allegedly disclosing that element. Contrarily, page 2, column 1, lines 17-19 appears to provide some background data about the special problems that distributed reference counting collectors face; page 6, column 2, lines 18-20 appears to describe that Dickman’s algorithm requires a depth counter and some basic requirements about its semantics. Dickman in those passages (or anywhere else), however, does not disclose or suggest to identify an object for garbage processing if it is determined that a second of the objects previously pointing thereto is no longer pointing thereto, and the depth value of the second object is one less than the depth value of the first object (or one less than the depth value of the first object modulo a maximum depth value, when depth value wrapping is involved). Therefore, claim 3 is further not anticipated by Dickman for at least this additional reason.

Claims 4-5 and 7 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Dickman and further in view of U.S. Patent Application Publication No.: 2002/0087590 to Bacon et al. (“Bacon”). Bacon as understood by applicant discloses collecting cyclic garbage on reference counting system. However, because Bacon does not make up for which Dickman fails to disclose as discussed above, applicants believe Dickman and Bacon, alone or in combination, do not disclose every element claimed in claims 4-5 and 7 and therefore, those claims are not obvious over Dickman and Bacon.


Claims 10-11 and 14-15 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Dickman and further in view of U.S. Patent No. 6,338,159 Alexander, III et al. (“Alexander”). Alexander as understood by applicant discloses trace information. However, Alexander also does not make up for which Dickman lacks as discussed above. For example,

Alexander does not disclose or suggest using a depth counter to determine whether an object is to be processed as garbage. In addition, Alexander does not keep an existing depth value based on validity of the depth value. As in Dickman, Alexander does not distinguish between valid and invalid depth values because, it appears that in Alexander depth values are always valid and always known. Thus, again, Alexander's depth values exist for different reasons than in claims 10-11 and 14-15. Accordingly, applicant believes Dickman and Alexander, alone or in combination, do not disclose every element claimed in claims 10-11 and 14-15 and therefore, those claims are not obvious over Dickman and Alexander.

In this reply new claims 21-22 are being added. Support for the new claims are found in paragraphs 0041 and 0053 of the published application. The new claims are also believed to be novel and unobvious over the cited references.

This communication is believed to be fully responsive to the Office Action and every effort has been made to place the application in condition for allowance. A favorable Office Action is hereby earnestly solicited. If the Examiner believes a telephone conference might expedite prosecution of this case, it is respectfully requested that he call applicant's attorney at (516) 742-4343.

Respectfully submitted,


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